Abstract of the Disclosure

A method and a device for decoding for use in a code-division multiple access (CDMA) transmission system for demodulating a received signal available in serial code concatenation, with a two-step coding being carried out at the transmitting end of the transmission system, including an orthogonal, multi-step inner Hadamard code and an outer, error-correcting code of a predefined rate. In the receiver, a soft-in/soft-out decoder is provided, at whose input and output soft values are processed as reliability information, i.e., L- values. The soft output of the first decoder step, or inner code is the soft input for the decoder step, or outer code, that follows in each case, the first decoder step receiving the output values of the preceding demodulation, which contain the channel's reliability information. A soft output is used by the decoder, in particular a MAP decoder, as a-priori information for the systematic bits of the Walsh function of the inner code for decoding of the inner code.